show that fat entry into absorptive cells is by passive diffusion of free fatty acids and monoglycerides. During fat absorption, morphologically demonstrable lipid droplets first appear within profiles of the smooth endoplasmic reticulum as chylomicrons. The protein component of chylomicrons is probably manufactured in the rough endoplasmic reticulum. Chylomicrons next appear within Golgi vacuoles and are probably extruded from the absorptive cell by way of the vacuoles by a process of reverse pinocytosis, though this has never been demonstrated. The rate-limiting process of fat absorption is that of exit of fat from the cell and events taking place within the Golgi apparatus may be the specific site of this rate-limiting step. Chylomicron passage to lacteals within the extracellular space is probably controlled by intestinal pressure changes and by muscular contractions of villi. Entry into the lymphatic lumen is largely via gaps in endothelial cells.

RELATION OF LEVELS OF DIETARY FAT TO ATRIAL THROMBOSIS IN R_f MICE. B. R. Clower (Dept. of Anatomy, Univ. of Miss. School of Med., Jackson, Miss.). *J. Atheroscler. Res.* 8, 885–90 (1968). Massive atrial thrombosis developed in R_f mice when fed a lipotropic-deficient diet containing either 40%, 28% or 6% levels of lard as the fat. The protein content was 8% casein. Carbohydrate (sucrose) levels of 45.5%, 57.5%, and 79.5% were used to balance the range in amount of fat. Within the 40% fat group, 65% of the mice developed atrial thrombosis as compared to a 36% and 30% incidence in the 28% and 6% fat level groups. The highest incidence of atrial lesions occurred during 10–12 weeks in the 6% fat group, and during 18–22 weeks in mice fed the 28% and 40% fat levels. After feeding the diets for as long as 20 weeks the incidence of atrial thrombosis decreased rapidly in the 6% and 28% fat level groups. In contrast the incidence did not decline in the 40% group until after 40 weeks.

STUDIES OF THE CHICK EDEMA DISEASE. 7. EFFECTS OF THE ORAL DIURETIC, HYDROCHLOROTHIAZIDE. D. F. Flick and R. G. O'Dell (Div. of Nutr., Bureau of Science, Food and Drug Admin., Washington, D.C. 20204). *Poultry Sci.* 47, 1886–89 (1969). The oral diuretic, hydrochlorothiazide, was fed at dietary levels of 0, 25, 30, 100, 500 and 1,000 mg./kg. along with a toxic fatty material known to produce the chick edema disease. After a three-week feeding regimen, it was found that the higher dietary levels of diuretic were most effective in preventing the formation of edema and had marked effects in preventing the blood dyscrasias which are associated with the disease.

VITAMIN E CONTENT OF MILK, MILK PRODUCTS AND SIMULATED MILKS: RELEVANCE TO INFANT NUTRITION. D. C. Herting and E. E. Drury (Research Labs., Distillation Products Ind., Div. of Eastman Kodak Co., Rochester, N.Y. 14603). *Am. J. Clin. Nutr.* 22, 147–55 (1969). Milk, milk products and simulated milks were analyzed by column chromatography on alumina to establish α-tocopherol levels, and by gas-liquid chromatography to determine polyunsaturated fatty acids. Human milk contained an average of 1.14 mg α-tocopherol/quart whether frozen-fresh, lyophilized, or pasteurized. The α-tocopherol content of homogenized cow's milk varied from about 0.21 mg/quart in early spring to about 1.06 mg/quart in mid-fall. Raw milk showed a similar pattern. Bovine colostrum contained about seven times as much α-tocopherol as milk taken 1 or 2 weeks postpartum. Evaporated, condensed, and nonfat dry milks supplied about 0.66, 1.29 and 0.02 mg α-tocopherol/reconstituted quart, respectively. Vitamin E levels in liquid and powdered simulated milks varied from 3.46 to 6.80 mg/reconstituted quart in standard formulas and from 2.30 to 7.67 mg/reconstituted quart in hypoallergenic formulas, depending primarily on the vegetable oil used and whether or not the product was fortified. Polyunsaturated fatty acid varied from 4% of fatty acids in cow's milk to about 50% of fatty acids in hypoallergenic milks. The adequacy for infant nutrition of the α-tocopherol content in milks, milk products, and simulated milks may depend as much on the relative content of polyunsaturated fatty acids as on the absolute level of α-tocopherol.

INFLUENCE OF ETHIONINE ON CHOLINE-DEFICIENCY FATTY LIVER. H. Sidransky and Ethel Vemey (Dept. of Pathol., Univ. of Pittsburgh, School of Med., Pittsburgh, Pa.). *J. Nutr.* 97, 419–430 (1969). Rats fed *ad libitum* a choline-deficient diet containing 0.25 or 0.5% ethionine for 7 to 21 days did not develop a choline-deficiency fatty liver. Likewise, rats force-fed a controlled intake of choline-deficient diet either supplemented with ethionine or receiving ethionine intraperitoneally for 3 days did not develop fatty liver. Rats force-fed

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• *Industry Items*

BUCKBEE-MEARS COMPANY of St. Paul announced that it has purchased the outstanding stock of BH Electronics, Inc., Clear Lake, Wis. BH Electronics began operations in April, 1969. The firm manufactures small electronic components and serves as consultants to the computer industry. Buckbee-Mears has been a user of BH products and services.

A new source for the design and manufacture of hydrogen plants has been provided by HOWE-BAKER ENGINEERS, INC., of Tyler, Texas. The international engineering-construction firm has purchased the technology of W. F. H. Schultz, Inc. of Doraville, Georgia, a producer of gas production plants since 1927. R. J. Phillips, President of Howe-Baker, said this reservoir of knowledge plus the employment of key personnel from Schultz will give the capability for a complete service of design, engineering, fabrication and construction of units for the production of hydrogen, nitrogen, carbon monozide and other gases. The plants will be furnished to a wide variety of industry customers. Howe-Baker is a wholly-owned subsidiary of Nalco Chemical Company, where know-how in catalyst technology will be very useful in the design of the gas plants. Howe-Baker has already produced one plant, a 2 million cu ft/day hydrogen production unit for a Canadian company.

• *Obituaries*

David C. Porter ('58), Technical Director of the Signal Chemical Division of Wyandotte Chemical Corporation, Aurora, Ohio, has recently passed away.

Paul Neal ('66) died on May 25, 1969. He was an Analytical Chemist for the Division of Food Chemistry of the Food and Drug Administration, Washington, D.C.

William J. Park ('59) died of a heart attack on June 30. He worked for the Purex Corporation, Wilmington, California. In 1966, Mr. Park was Hotel Chairman for the Los Angeles Convention and in 1967, he was Southwest Section Chairman. Mr. Park was to have served as the General Chairman of the 1972 Annual Meeting in Los Angeles.